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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/678,484	10/03/2003	James J. Rawnick	7162-86	1432

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EXAMINER	
HAM, SEUNGSOOK	

ART UNIT	PAPER NUMBER
2817	

DATE MAILED: 11/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/678,484	RAWNICK ET AL.	
	Examiner	Art Unit	
	Seungsook Ham	2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 September 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 October 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *10/3/03, 09/27/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "100" (see abstract) and "110" (page 7, paragraph [0021]) have both been used to designate phase delay line. Moreover, reference characters "111" (see abstract) and "110" (pae 7, paragraph [0021]) refer to RF transmission line. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "111" has been used to designate both RF transmission line (see abstract) and conductor (page7, paragraph [0021]). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled

"Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

Claims 2-5 and 17-20 are objected to because of the following informalities:

In claim 2 and 18-20, "said first fluidic dielectric" lacks antecedent basis.

Appropriate correction is required.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-30 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-20 of copending Application No. 10/387,209 in view of Toko et al. (US Pat. App;. Publ. '577) or Buck (US '311). The instant claims are the same except the fluid channel having a serpentine configuration. However, a phase shifter having a serpentine/meander line

configuration is well known in the art. Toko et al. (fig. 1(a)) and Buck (fig.1) disclose a phase shifter with a serpentine/meander line configuration for phase delay. Therefore, it would have been obvious to one of ordinary skill in the art to provide the fluid channel with a serpentine configuration in the instant claims since a phase shifter with a serpentine configuration for phase delay is well known in the art as shown by Toko et al. or Buck.

This is a provisional obviousness-type double patenting rejection.

Claims 1-30 are rejected under 35 U.S.C. 103(a) as being obvious over US Application 10/387,209.

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the

reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2). The instant claims are the same except the fluid channel having a serpentine configuration. However, a phase shifter having a serpentine/meander line configuration is well known in the art. Toko et al. (fig. 1(a)) and Buck (fig.1) disclose a phase shifter with a serpentine/meander line configuration for phase delay. Therefore, it would have been obvious to one of ordinary skill in the art to provide the fluid channel with a serpentine configuration in the instant claims since a phase shifter with a serpentine configuration for phase delay is well known in the art as shown by Toko et al. or Buck.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1:56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 2, 5-9, 11, 13-18, and 22-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moller (US '235) in view of Smith and Buck (US '311).

Moller (figs. 1-4) discloses a high frequency tuning circuit comprising: an RF transmission line 40, 150, 160; a structure defining a fluid channel 180 (not shown, see col. 4, line 50-55) coupled to the RF transmission line along at least a portion of a length of the transmission line; a phase delay (or time delay) of the transmission line is selectively varied by changing the distribution of a fluidic dielectric (170) in the fluid channel (col. 3, lines 4-12). Moller does not show a variable displacement fluid processor and the fluid channel having a serpentine configuration.

Smith (fig. 3) discloses a phase shifter/delay having a fluidic processor for controlling the fluid distribution to vary the phase shift/delay.

Buck (fig. 1) discloses a conventional phase shifter having a serpentine/meander line configuration for a phase delay signal.

It would have been obvious to one of ordinary skill in the art to use a fluid processor in the device of Moller to control the distribution of the fluidic dielectric as taught by Smith (col. 2, lines 32-54), and also configure the fluid channel in a serpentine configuration to provide a phase delay signal since serpentine configuration phase shifter is well known in the art as shown by Buck.

Regarding claims 2, 6, 13-15, 18, 25-29, Moller teaches that fluidic dielectric can be mixed with another fluid, e.g, of higher of lower dielectric value as needed (col. 3,

lines 35-44). Thus, the first and second fluidic dielectric have a different permittivity (i.e., high and low dielectric constants, see also claim 2 recites "at least one of"). Moreover, the specific material for dielectric fluidic is considered as a matter of design choice ferrite and industrial solvent are well known dielectric material for a phase shifter and one can use different dielectric fluidic to obtain a desire response.

Regarding claims 7-9 and 22-24, Moller also shows a solid ceramic substrate 1 coupled to the transmission line. Using a low temperature co-fired ceramic substrate as the dielectric substrate in the modified device of Moller is considered as an obvious design modification to obtain a desire characteristic of the device.

Claims 3, 4, 12, and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moller (US '235) in view of Smith and Buck (US '311) as applied to claims 1, 2, 11 and 17 above, and further in view of Wollenschlager (US '500).

The modified device of Moller does not show the first and second fluidic dielectrics are immiscible and also separated by an immiscible fluid interface. However, using two non-mixing fluidic dielectrics for varying capacitance (or permittivity) is well known in the art. Wollenschlager (see figure and col. 3, lines 50-65). Therefore, it would have been obvious to one of ordinary skill in the art to use non-mixing fluidic dielectrics as the fluidic dielectrics in the modified device of Moller for simple assembly as taught by Wollenschlager (col. 2, lines 59-68).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Benavides et al. (US '179) discloses a high frequency circuit using a low-temperature co-fired ceramic substrate as a base substrate;

Yoshida et al. (US '760) discloses a delay line having a serpentine configuration; and

Snyder et al. (US Pat. App. Pub. '865) is the publish application for US patent application 10/387,209 .

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seungsook Ham whose telephone number is (571) 272-2405. The examiner can normally be reached on Monday-Thursday, 8:00AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (571)-272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Seungsook Ham
Primary Examiner
Art Unit 2817

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